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REMARKS

This Amendment is responsive to the Office Action mailed April 13, 2004. Following entry of this Amendment, claims 1, 3-25, and 27-66 are pending in this application. Claims 2 and 26 have been cancelled. Applicants respectfully request reconsideration of this application.

Amendments to the Specification

Applicants have amended the specification to correct various informalities at the request of the Examiner.

Amendments to the Claims

Independent claims 1 and 52 to have been amended to recite that the printing plate precursor is negative working and oleophilic, that the catalyst comprises an acid, and that upon thermal treatment of the image forming layer, the polymeric material in the imagewise contacted portions of the image forming layer undergoes a sufficient crosslinking reaction to cause the imagewise contacted portions of the image forming layer to become less developable in a developer liquid than portions of the image forming layer that are not contacted with the catalyst.

These claim amendments are fully supported by the claims as originally filed. For example, the "negative working" feature is supported by claims 1 and 52 as originally filed, which recited that the image forming layer becomes less developable upon thermal treatment in the presence of a catalyst, i.e., that the plate is negative working. The claim feature that the catalyst comprises an acid is supported by claim 26 as originally filed. The "cross-linking" claim feature is supported by multiple claims (e.g. claims 4, 7, 8 and 13) which recite that the polymeric material is self-crosslinking or that the image forming layer includes a cross-linking material. These claim amendments are also fully supported by the specification as originally filed.

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Objections to the Claims

The Examiner objected to claims 7, 8, 16, and 17 stating that "a catalyst" is a double recitation of "a catalyst" in claim 1. Applicants have amended claims 7, 8, 16, and 17 to recite "the catalyst."

The Examiner objected to claim 50 stating that "a substrate" is a double recitation of "a substrate" in claim 1. The Examiner also objected to claims 50 and 51 stating that "a coating mixture" appeared to be the same as the image forming layer. Applicants have amended claim 50 to clarify the step of providing a printing plate precursor in claim 1 to further include the steps of applying onto a substrate a coating mixture that includes a carrier and one or more polymeric materials, and drying the coating mixture to form the image forming layer. These steps are described on page 10, lines 24-29 of the specification.

Claim Rejections

The Examiner rejected claims 1-6, 9-11, 25, 31-37, 40-48, 50, 52-54, 57 and 62-66 under 35 U.S.C. 102 (e) as being anticipated by U.S. Pat. No. 6,691,618, to Deutsch et al. The Examiner states that Deutsch et al. reports every feature of the claimed invention. In particular the Examiner states that the polymeric binder reported in Deutsch et al. reacts and crosslinks upon thermal treatment.

Independent claims 1 and 52 have been amended to recite that the catalyst includes an acid and that the polymeric material in imaged portions of the image forming layer undergoes a sufficient crosslinking reaction to cause imaged portions to be less developable than unimaged portions. Applicants respectfully submit that amended claims 1 and 52 and all claims depending from claims 1 and 52 are not anticipated by Deutsch et al. because Deutsch et al. does not report a method in which a catalyst including an acid is utilized as part of a crosslinking reaction to image a printing plate precursor.

Deutsch et al. actually reports three distinct methods for imaging a printing plate precursor. In a first embodiment, Deutsch et al. reports imaging an on-press developable negative working printing plate coating with an alkaline insolubilizing chemical and then heating the plate coating such that imaged portions of the coating crosslink. See, for

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example, Deutsch et al., col. 18 lines 42-63. In a second embodiment, Deutsch et al. reports an "image reversal" process in which a positive working plate is imaged by first blanket exposing the plate coating to light and then imagewise applying an insolubilizing chemical, which may include an acid, to the plate coating. The insolubilizing chemical reportedly decarboxylates the carboxylic acid groups that form in the plate coating during blanket exposure. See Deutsch et al., col. 10, lines 6-13. In a third embodiment, Deutsch et al. reports a process in which a plate coating that includes carboxylic acid groups and alkali soluble resins is imaged by imagewise applying an insolubilizing chemical, which may include an acid to the plate coating and heating the plate. Like in the second embodiment, the insolubilizing reportedly decarboxylates the carboxylic acid groups in the plate coating. See Deutsch et al., col. 20, line 38-68.

Applicants have interpreted the Examiner's rejection as relying on the first embodiment reported in Deutsch et al. and described above because neither the second or third embodiments described above expressly report an imaging method which utilizes a cross-linking reaction. Rather, Deutsch et al. reports that the second and third embodiments utilize a decarboxylation reaction to image a printing plate precursor. Thus, unless otherwise noted, Applicants' arguments with respect to Deutsch et al. refer to the first embodiment described above. The second and third embodiments will be referred to herein as "the decarboxylation embodiments."

Applicants respectfully submit that Deutsch et al. does not teach imaging with a catalyst that includes an acid as recited in amended claims 1 and 52, but instead, reports the use of insolubilizing chemicals that include alkaline materials. Therefore, claims 1 and 52 are not anticipated by Deutsch et al. Claims 2-6, 9-11, 25, 31-37, 40-48, 50, 53-54, 57 and 62-66 depend from independent claims 1 and 52 and are allowable over Deutsch et al. for at least the same reasons as independent claims 1 and 52. Applicants respectfully request withdrawal of this rejection.

Claim 12 was rejected under 35 U.S.C. 103(a) as being unpatentable over Deutsch et al. According to the Examiner, while Deutsch et al. does not specifically teach the polymeric binder recited in claim 12, Deutsch et al. reports the use of hydroxyethylmethacrylate, cyclohexylmethacrylate and methylmethacrylate in a binder.

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Claim 12 depends from amended claim 1. Applicants respectfully submit that regardless of whether Deutsch et al. suggests the binders recited in claim 12, Deutsch et al. does not teach a catalyst that includes an acid. Thus, claim 12 is not obvious in view of Deutsch et al., and Applicants respectfully request withdrawal of this rejection.

The Examiner rejected claims 7, 8, 10, 13-20, 22-24, 38, 39, 49, 51, 55, and 56 under 35 U.S.C. 103(a) as being unpatentable over Deutsch et al. in view of U.S. Published Application No. 2003/0005853 to Damme et al. According to the Examiner, while Deutsch et al. does not teach a polymeric binder and crosslinking material, Damme et al. teaches a similar method including a polymeric binder (e.g. Novolak) and a crosslinking material (e.g. resole). The Examiner further states that it would have been obvious to provide the method of Deutsch et al. with a polymeric binder and crosslinking material in view of Damme et al.

As previously noted, independent claims 1 and 52 upon which the rejected claims depend, have been amended to recite that the catalyst includes an acid and that upon heat treatment, the polymeric material in imaged portions of the image forming layer undergoes a sufficient crosslinking reaction to cause the imaged portion to become less developable than unimaged portions. All of the rejected claims depend from claims 1 and 52.

Applicants respectfully submit that the rejected claims are patentable over Deutsch et al. as modified by Damme et al. because neither of these references report a method which utilizes an insolubilizing chemical or a dissolution inhibitor that includes an acid as part of a cross-linking reaction. As argued above, Deutsch et al. reports the use of alkaline insolubilizing chemicals rather than catalysts that include an acid as claimed.

Damme et al. reports a method for the preparation of a negative working lithographic printing plate in which a dissolution inhibitor is imagewise ink-jet applied onto a printing plate precursor. The precursor is then dried and developed to remove the non-image area.

Damme et al. reports the use of two types of dissolution inhibitor compounds. One type of dissolution inhibitor compound includes compounds that have a polar functionality that serve as acceptor sites for hydrogen bonding with hydroxyl groups on aromatic rings. See para. [0042]. A second type of dissolution inhibitor compound, called reversible insolubiliser compounds, includes nitrogen-containing compounds where a least one nitrogen

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atom is either quarternized, incorporated in a heterocyclic ring or quarternized and incorporated in a heterocyclic ring. See para. [0046].

Like the insolubilizing chemical reported in Deutsch et al., the dissolution inhibitors reported in Damme et al. do not include an acid. Thus, the combination of Deutsch et al. and Damme et al. asserted by the Examiner does not teach or suggest the use of a catalyst that includes an acid. Applicants respectfully request withdrawal of this rejection.

Furthermore, there would be no motivation to modify the decarboxylation embodiments reported in Deutsch et al. with the binders reported in Damme et al. Damme et al. reports that the image forming layers may include a variety of polymeric binders, including phenolic resins such as Novolac resins and resole resins, however, Novolac resins are preferred. See Damme et al. at paragraphs [0079]-[0080]. Additionally, although a mixture of resins may be used, a single resin (e.g. a Novolac resin) is preferably used. See Damme et al. at paragraph [0086].

Although it is clear from Applicants' claimed invention that the binders reported in Damme et al. may be used as crosslinking materials under certain conditions, these binders do not reportedly crosslink in the method reported in Damme et al. Instead, the dissolution inhibitors reportedly insolubilize imaged portions of the image forming layer by forming hydrogen bonds. See Damme et al. at paragraph [0042]. Thus, persons of skill in the art would not be motivated to modify the decarboxylation embodiments reported in Deutsch et al. with the binder materials reported in Damme et al. to form a more durable image area because neither reference teaches that the reported binder materials crosslink as part of the reported imaging methods.. Furthermore, because the second and third embodiments of Deutsch et al. and Damme et al. appear to cause coating insolubilization via different mechanisms (i.e. decarboxylation versus hydrogen bonding), there would be no reasonable expectation that a more durable layer would be formed if the binders reported in Deutsch et al. were combined with the coating reported in Damme et al.

The Examiner rejected claims 26-30 under 35 U.S.C. 103(a) as being unpatentable over Deutsch et al. in view of UK 1,431,462 to Agfa. According to the Examiner, while Deutsch et al. does not teach an acid catalyst, Agfa teaches a similar method using sulfonic acid as a catalyst. Therefore, the Examiner stated that it would be obvious to provide the

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method reported in Deutsch et al. with the step of applying an acid in view of Agfa as an alternate cross-linking process.

Applicants respectfully submit that there would have been no motivation to modify Deutsch et al. with a catalyst that includes an acid based on Agfa. First, as acknowledged by the Examiner, Deutsch et al. does not report imaging with a catalyst that includes an acid.

Agfa reports a process for the production of a relief image by the ink jet method, in which a liquid is ink-jetted on to a polymer layer in desired image areas, so that the solubility properties of the polymer are modified in those imaged areas which are sprayed with the liquid. This layer is then treated with a solvent so that a relief image of the original is obtained. See Agfa, page 1, line 90 to page 2, line 7. Agfa reports several combinations of imaging liquids and polymer layers that function to form a relief image. For example, Agfa reports that commercial alkyd resins of polyvalent alcohols and acids may be imaged by an acid. See Agfa, page 3, line 126 to page 4, line 5. Specific examples of these polymer layers include mixtures of alkyd resins derived from phthalic acid anhydride/benzoic acid and polyhydric alcohols such as pentaerythritol.

Although Agfa reports the use of acid imaging liquids in specific embodiments, there would have been no motivation to modify the first embodiment reported in Deutsch et al. with an acid because Deutsch et al. and Agfa report the use of distinct imaging liquids to treat distinct polymer materials for the preparation of distinct products. First, Deutsch et al. reports the use of an *alkaline* insolubilizing chemical, and thus, expressly teaches away from the *acidic* imaging liquid reported in Agfa. Second, Deutsch et al. and Agfa utilize different polymeric materials in their respective image forming layers. Deutsch et al. reports the use of acrylic resins, while Agfa reports the use of resins derived from polyvalent alcohol and acids. Third, the polymeric materials reported in Agfa would not necessarily be oleophilic as required in the printing plate precursors reported in Deutsch, and thus, would not likely be used as part of a printing plate precursor. Indeed, Example 3 of Agfa, reports the use of an acid to form a relief mask as part of a method of forming a printed circuit board rather than a printing plate precursor. Applicants respectfully request withdrawal of this rejection.

The carboxylation embodiments reported in Deutsch et al. already report the use of a catalyst which includes an acid, but these embodiments do not utilize the acid as part of a

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crosslinking reaction as claimed. Thus, even if the carboxylation embodiments were modified by Agfa, the crosslinking feature of the claimed invention would not be suggested or taught by the asserted combination of these references.

Finally, the Examiner rejects claims 58-61 under 35 U.S.C. 103(a) as being unpatentable over Deutsch et al. in view of U.S. Pat. No. 5,464,724 to Akiyama et al. According to the Examiner, while Deutsch et al. does not teach the ratio between the silicon oxide and metal oxide in the developer liquid, Akiyama et al. teaches the recited ratios and that it would have been obvious to provide the method of Deutsch et al. with the recited silicon oxide to metal oxide ratio in view of Akiyama et al.

Claims 58-61 depend from amended claim 52. As previously noted, claim 52 recites the step of applying a catalyst that includes an acid to an image forming layer. Applicants respectfully submit that the combination of these references would not render the claimed invention obvious because neither reference reports the use of an acid catalyst.

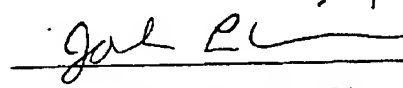
As also previously noted, Deutsch et al. reports the use of an alkaline insolubilizing chemical rather than a catalyst that includes an acid. Akiyama et al. reports a pre-sensitized plate, which is imaged by exposure to light rather than by applying a liquid catalyst. Therefore, neither reference reports the use of a catalyst that includes an acid, and Applicants respectfully request withdrawal of this rejection.

Conclusion

All pending claims are in condition for allowance. Applicants respectfully request a notice to that effect.

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